

REMARKS

Claims 1-19 and 21-31 are pending in this application. By this Amendment, claims 1-2, 6, 9-12, 15, 18-19 and 21 are amended, claim 20 is cancelled without prejudice or disclaimer and new claims 26-31 are added. Various amendments are made for clarity and are unrelated to issues of patentability.

Applicant is attaching a Claim for Priority along with a certified copy of the Korean priority documents. Applicant is also attaching a Substitute Declaration that claims priority to the Korean priority documents.

The Office Action objects to claim 10 because of informalities. It is respectfully submitted that the above amendment to claim 10 obviates the grounds for objection. Withdrawal of the objection is respectfully requested.

The Office Action rejects claims 9 and 10 under 35 U.S.C. §112, first paragraph. The Office Action also rejects claims 13 and 18 under 35 U.S.C. §112, second paragraph. The above amendments to claims 9, 10 and 11 generally correspond to the amendments suggested in the Office Action. Independent claim 11 is also amended to state that the memory is provided in a lamp of the LCD or in the LCD. Dependent claim 13 recites additional features of the memory. Withdrawal of the rejections under 35 U.S.C. §112 is respectfully requested.

The Office Action rejects claim 21 (and presumably claim 22) under 35 U.S.C. §102(e) by U.S. Patent Publication 2004/0008176 to Nuimura. The Office Action also rejects claims 1-3, 6-17 and 19-20 under 35 U.S.C. §103(a) over Nuimura in view of U.S. Patent Publication

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2001/0004257 to Nitta et al. (hereafter Nitta). Still further, the Office Action rejects claims 4 and 5 (and presumably claims 18 and 23-25) under 35 U.S.C. §103(a) over Nuimura, Nitta and further in view of U.S. Patent 5,977,934 to Wada et al. (hereafter Wada). The rejections are respectfully traversed with respect to the pending claims.

Independent claim 1 recites identifying an LCD frame frequency recorded in extended display identification data (EDID) of a memory provided in an LCD, deriving a PWM frequency of an inverter adapted to control a brightness of the LCD responsive to the identified LCD frame frequency, and driving the LCD in accordance with the derived PWM frequency of the inverter.

The applied references do not teach or suggest at least these features of independent claim 1. More specifically, Nuimura discloses a brightness control device 3 that includes a CPU 32 (FIG. 8) to produce a PWN signal Sc based on frequency data Df generated by display device 2. The frequency fc of the PWN signal Sc is obtained by inputting the frequency fv provided by frequency data Df. The CPU 32 may determine a duty ratio of the PWN signal Sc. See paragraph [0027].

However, Nuimura is very specific that the signals are for one of a PAL system, a SECAM system and/or a NTSC system. Nuimura also discloses that only very specific frequencies may be obtained. See, for example, Nuimura's paragraphs [0014], [0010] last sentence, [0031] last sentence, [0037], [0039] and col. 5 (claim 3). Nuimura has no teaching or suggestion for extended display identification data (EDID) in a memory provided in an LCD.

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Nuimura relies on very specific systems in order to control brightnesses. Nuimura also has no suggestion for the EDID being used to drive the LCD in accordance with a derived frequency of an inverter.

The Office Action (on page 7) states that Nuimura does not disclose an LCD frame frequency recorded in a memory provided in a LCD. The Office Action then relies on Nitta's paragraph [0011] as disclosing storing EDID data that includes a frame rate. However, there is no suggestion in the prior art for utilizing Nitta's EDID data within Nuimura's system to derive a PWM frequency of an inverter and drive an LCD in accordance with the derived PWM frequency of the inverter. Nuimura is very specific regarding only specific systems/frequencies that may be used within its disclosure. There is no suggestion to utilize an EDID for these disclosed systems (and as claimed). Furthermore, Nitta has no disclosure that frame frequency is utilized outside of the LCD such as to derive a PWM frequency.

For at least these reasons, Nuimura and Nitta may not be combined as alleged in the Office Action so as to reach all the claimed features. Accordingly, independent claim 1 defines patentable subject matter.

Independent claim 11 recites a memory recorded with extended display identification data (EDID) for an LCD, the memory provided in a lamp of the LCD or in the LCD. Independent claim 11 also recites an inverter that supplies a voltage to the LCD, and control means for controlling a PWM frequency of the inverter in accordance with an LCD frame frequency corresponding to information in the EDID.

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For at least similar reasons as set forth above, the applied references do not teach or suggest all the features of independent claim 11. Thus, independent claim 11 defines patentable subject matter.

Independent claim 21 recites a memory recorded with extended display identification data (EDID) for a liquid crystal display (LCD) of the display. Independent claim 23 also recites an inverter that supplies a voltage to the LCD, and a controller coupled to the main processor that controls a pulse width modulated (PWM) frequency of the inverter in accordance with an LCD frame frequency included in the EDID.

For at least similar reasons as set forth above, the applied references do not teach or suggest all the features of independent claim 21. Thus, independent claim 21 defines patentable subject matter

For at least the reasons set forth above, each of independent claims 1, 11 and 21 defines patentable subject matter. Each of the dependent claims depends from one of the independent claims and therefore defines patentable subject matter at least for this reason. In addition, the dependent claims recite features that further and independently distinguish over the applied references.

For example, dependent claim 28 recites that the EDID include a minimum frame frequency and a maximum frame frequency, and the PWM frequency is derived based on the minimum frame frequency or the maximum frame frequency. See also dependent claims 26 and 30. Additionally, dependent claim 29 recites that the EDID includes an average frame frequency,

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and the PWM frequency is derived based on the average frame frequency. See also dependent claims 27 and 31. The applied references do not teach or suggest at least these features. Nuimura does not teach or suggest EDID and/or the utilization of minimum/maximum/average frame frequencies. Further, Nitta does not disclose a minimum frame frequency, a maximum frame frequency or an average frame frequency. The other applied references do not teach or suggest the missing features of these dependent claims. Furthermore, none of the references, including Nitta, disclose utilizing a minimum frame frequency, a maximum frame frequency or an average frame frequency when deriving a PWM frequency of an inverter. Dependent claims 26-31 define patentable subject matter at least for these additional reasons.

CONCLUSION

In view of the foregoing, it is respectfully submitted that the application is in condition for allowance. Favorable consideration and prompt allowance of claims 1-19 and 21-31 are earnestly solicited. If the Examiner believes that any additional changes would place the application in better condition for allowance, the Examiner is invited to contact the undersigned attorney at the telephone number listed below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this,

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concurrent and future replies, including extension of time fees, to Deposit Account 16-0607 and please credit any excess fees to such deposit account.

Respectfully submitted,



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Attachments: Claim for Priority
Substitute Declaration

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